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Department of Communications,
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National Broadband Plan:

Ownership

Assessment of Ownership Options for State Aided Broadband Infrastructure

Confidential & Commercially Sensitive

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Executive Summary

Introduction

The National Broadband Plan Intervention (NBPI) is a Government led programme to provide next generation broadband connectivity for circa 757,000 delivery points in rural Ireland located in areas where commercial operators currently have no firm plans for the delivery of such services.

The Department of Communications, Energy and Natural Resources ("DCENR") is responsible for the delivery of this programme. DCENR is currently engaged in the appointment of a company or companies to implement the planned intervention.

Background

Following intensive engagement with industry and wider stakeholders, DCENR published in July 2015 the draft Intervention Strategy[1] to intervene in the high-speed broadband market (currently defined as download speeds of at least 30Mbps) where there is clear market failure[2].

One element of the Intervention Strategy was the question of "ownership" of the asset or assets funded by the State to address the market failure identified. The Department carried out a public consultation in July 2015 on the Intervention Strategy including five alternative Ownership options and received mixed views with regard to all options put forward. Following the public consultation, the Department reverted to Government in December 2015 with a proposed updated Intervention Strategy including an assessment of the five options under consideration. The Government, based on the information provided, decided to narrow the options to two Ownership models; the commercial stimulus model (hereafter the "Gap Funding" model), and the full concessionaire model (hereafter the "Full Concession" model). Under both models, the Winning Bidder(s) will design, build and manage the delivery of the network to provide a wholesale high-speed broadband service.

The key difference between the two options is that under the Full Concession model the Government would take ownership of the assets funded at the end of the contract term whereas under the Gap Funding model the Winning Bidder(s) would retain ownership of these assets after the expiry of the contract.

Purpose of this document

As part of its decision to narrow the options to two Ownership options, the Government asked the Minister to revert prior to the commencement of the competitive dialogue process, with further analysis and consideration of the two options short-listed. This document sets out this analysis and provides a final recommendation for Government.

[1] See http://www.dcenr.gov.ie/communications/en-ie/Pages/Consultation/NBP-Strategy-Intervention-Public-Consultation.aspx#

[2] This lack of commercial investment, where there is a clear demand for high-speed broadband, is captured by the economic term "market failure".

Analysis since December 2015

In January 2016, the Department set up a Sub-Group to discuss these options in more detail and this document sets out the outcome of the deliberations of this Sub-Group, together with the further analysis and research carried out by the Department. This Sub-Group comprised of representatives from DCENR, NDFA, NewEra, Department of Finance and the Department of Expenditure and Reform. The Sub-Group have provided comments only on specific aspects of this document and the recommendation provided in this document is that of the Department. The full terms of reference of the Sub-Group are included in Appendix VI.

The deliberations of the Sub-Group were informed by the Department's financial advisors' (KPMG) expert report published on 22 December 2015, together with additional financial modelling results of the options being considered. KPMG provided detailed scenarios of the likely cost to the State of the various options in real and nominal terms. The Sub-Group also considered the views of stakeholders received from the July 2015 consultation.

The KPMG expert report published in December 2015 recommended the Gap Funding model as being, on balance, the optimal option for the State. The Sub-Group was tasked with providing further advice and assistance with regard to how the Department might arrive at a final recommendation.

The Sub-Group therefore considered a number of areas that it believes should be taken into account with regard to ownership before an intervention is made by the State while taking into account the market failure identified and how best to achieve the objectives of the NBP. The key areas identified for the review were:

- That the Winning Bidder(s) may suffer financial distress such that they cannot fulfil the terms of the contract,
- That the public policy objectives and the commercial operator objective of profit maximisation may be in conflict,
- Lack of continued investment by the private sector such that significant issues arise beyond the contract term,
- That any funding for the Winning Bidder(s) could give rise to a monopoly network position for that Winning Bidder(s) which could in turn result in higher prices post-contract when compared to non-Intervention Areas; and
- Discontinuation of services for some uneconomic premises post-contract.

The Sub-Group also noted that the management of the contract should be largely similar for both the Gap Funding and Full Concession ownership options and that a robust contract monitored by a well-resourced governance team for the duration of the contract will be required to ensure the Winning Bidder(s)' compliance with the contract.

Risk Management – through contract

The main risks concerning both ownership options apply equally to both and irrespective of which option is chosen. The risks will require mitigation through strong contractual requirements. Therefore, it is the Department's clear intention to ensure any contract awarded will include requirements such as;

- A significant contract for service with robust clauses that will include provision for the possibility of the State to "step in" in the event of financial distress or non-compliance with the contract,
- Provision for "future proofing" the network where the Winning Bidder(s) will be required to commit to future investment and service levels. Broadband services in the Intervention Area will have to be broadly comparable with the services available in the non-Intervention Area throughout the contract period. The contract will be for 25 years and therefore these commitments will be critical,
- Provision for wholesale prices charged by the network company to be no higher than wholesale prices charged in the non-Intervention Area (urban areas) for comparable high speed broadband services,
- Close monitoring of retail prices of affiliates of the Winning Bidder(s) to ensure the open access wholesale network is fulfilling the stated policy objective that consumers in the Intervention Area are charged no more than consumers in the non-Intervention Area for comparable services,
- Spreading of payments to the Winning Bidder(s) throughout the 25-year term of the contract to allow the Department to apply service credits where contractual obligations are not being met,
- Inclusion of appropriate Governance Structures between the Department and the Winning Bidder(s) (this will require that the appropriate resources are in place in the Department to closely monitor and effectively enforce compliance with these structures), and
- Contractual clauses and / or future regulation to ensure continuation of essential broadband services after the contract expiry. The Gap Funding model contract may (subject to legal advice and effect on the level of subvention required) include some enduring clauses in relation to the continuation of the supply post contract. A Universal Service Obligation (USO) in relation to broadband could potentially also play a role

  For the Full Concession option, the State, can decide whether to extend the contract, run a new tender process or operate the network itself. Any USO obligation would fall on the State, or new Concessionaire operator were it to take back control of the network.

Risk Management through regulation

The telecoms sector is highly regulated by ComReg, the communications regulator in Ireland. The European Commission has numerous directives and regulations that have been transposed into Irish

law and are currently implemented by ComReg. If the Winning Bidder(s) is deemed by ComReg to have market power in the Intervention Area, regulation will provide an added layer of control over and above the contract with the State. Through regulation, ComReg has the statutory obligation to incentivise re-investment in a regulated network, to promote competition and to protect the interests of end users. It must also ensure that regulation in Ireland and the activities of regulated companies in Ireland are consistent with other comparable Member States. ComReg will play a key role in monitoring the activity of the Winning Bidder(s), and may, subject to whether the Winning Bidder(s) has market power or not, regulate the Winning Bidder(s). The Department intends to introduce legislation over the coming year that will ensure that in the absence of a finding of market power, ComReg can still advise the Department in relation to, and assist in the monitoring of, the activities of the Winning Bidder(s).

[redacted]

Principal Differences between the Ownership Models

The principal difference between the Ownership models is the transfer/control of the assets to the State at the contract expiry.

While there could be an upside to the State of owning the asset/service at the end of the contract period, it is very difficult to assess any such upside due to the time horizon of 25 years due to the fact that it is impossible to predict either the level or pace of technological advancements in the telecommunications sector or the commercial availability of high-speed broadband in the Intervention Area over this time horizon.

Any possible upside must also be considered against the risks of the State having to take over a network and all its constituent elements and customers and potentially provide further funding to ensure continuation of service.

Based on the financial advice provided by KPMG, the Full Concession will come at a significantly higher cost to the State in nominal terms over the lifetime of the contract. This report also notes that the Full Concession option is more likely to be considered "on" the Government Balance Sheet while Gap Funding (where control is limited) is unlikely to be.

The detailed financial analysis assessed factors where the commercial sector may not look as favourably on a Full Concession model when considering the extent of their own commercial investment in the network required. Any additional control by the State and the prospect of losing the ownership of key assets at the end of the contact would likely place more risk on the ability of the commercial sector to recover their investment.

Recommendation

Further to the analysis and detailed consideration of the two short listed options, and notwithstanding that the Full Concession model is likely to provide more assurance to the Government on the long term continuing provision of high speed broadband to the Intervention Area, the Department is of the view that the **Gap Funding (Commercial stimulus)** option represents the best value to the State while achieving the objectives set out in the Intervention Strategy approved by Government in December 2015.

However it will be critically important that any preferred bidder should, prior to a contract being awarded, accept via the contract to be agreed the appropriate minimum set of risk management measures outlined in this document.

The following reasons (and in no particular order) form the basis of the Department's recommendation:

1. The Full Concession model is estimated[3] to require an additional [redacted] Government subvention over the duration of the contract, (an increase of [redacted] on the likely cost of the Gap funded option) - when adjusted to reflect the time value of money the difference is between €[redacted] and €[redacted]m[4],

2. The Full Concession may require significantly more cash payments upfront than the Gap Funding model where there is less commercial appetite for this option and place a significant burden on the State finances at a time when there are multiple State Investment needs,

3. The Full Concession is more likely to be "on" Balance Sheet from a Government Accounting perspective. In the event that it is determined to be on Balance Sheet it would follow that all capital expenditure incurred in building the network would have to be recognised in the Government Accounts at the time the expenditure is incurred. The value of this investment by the end of the network build may cumulatively be in order of [redacted] billion in nominal terms, the majority of which will be incurred during the initial 3-5 year rollout. In addition, if the Intervention is on Balance Sheet the value of any commercial investment by the Winning Bidder(s) would likely be recognised as a loan to Government (to be repaid from future revenues from the network) and would impact the General Government debt. if the investment is "off" Balance Sheet the Government Accounts would only need to recognise the proportion of the expenditure that the Government was funding and would have no impact on the General Government debt.,

4. Where there is a competitive tendering process under both ownership options, Gap Funding is more likely to financially outperform the Full Concession because under Gap Funding

[3] All Figures included are as a result of a desk top modelling exercise and may not be the actual subsidy required following the competitive procurement process. Further details in Appendix 1.

[4] The figures quoted do not include the value of the asset reverting to the State at year 25 in the full Concession Model as detailed in Appendix 1, the NPV value of the returning asset is €815m in year 25 which equates to some €278m discounted back to current value.

bidders are more likely to factor into their bid price the continued ownership of the network post-contract,

5. Gap Funding meets the Intervention's objective which is to solve the issue of market failure around the provision of high speed broadband (it is not to bring telecoms networks back into State Ownership),

6. Legislation can be provided in the coming years to ensure regulation can safeguard universal access to high-speed broadband for all premises where a company or companies can be designated the Universal Service Provider. This could ensure that premises will have access to high-speed broadband post-contract, similar to the current universal service obligation in place for voice services.

7. The Full Concession model could give rise to an upside to the State post-contract through the ownership of the asset. It is, however, more likely to place risk on the State at the end of the contract where it must manage a significant asset which may be faced with the risk of technological obsolescence , may require significant upgrades or other unforeseen changes to the market. It may be challenging to ensure continued operator investment towards the end of the contract where the assets revert to the state and where the operator may get insufficient return on its investment.

Notwithstanding any likely additional cost to the State, in the event that the Full Concession option is considered to be the most appropriate model for the intervention, recognition must be given to the elevated level of risk this might bring at the following stages of the Contract;

1. Contract Award - the further complication of asset reversion[5], and the appropriate definitions and valuations, of both tangible and intangible assets reverting to the state at contract expiry will add further complexity to the dialogue procedure across all the bidders and may increase the likelihood of a delay in contract award,

2. Contract Management – continual ongoing legal negotiations throughout the contract term over network enhancements to determine whether each enhancement by the Winning Bidder(s) reverts to the State at contract expiry and if there is an associated cost to the State for such enhancements, and

3. Post Contract – the complexity of asset reversion and the continuing provision of services through the leasing of 3rd party assets essential for the delivery of such services post-contract will add to a level of uncertainty over the ability of the State to ensure the availability of services post-contract without providing significant further investment.

[5] See Section 2.9 for more detail on asset reversion.

Section 1- Background

1.1 Introduction

The National Broadband Plan (NBP) "Delivering a Connected Society[6]" sets out a strategy to deliver high-speed broadband throughout Ireland leveraging investment from both the private and public sectors. Since its publication, there has been considerable investment in high-speed broadband by the commercial sector with the majority of urban centres now availing of speeds of up to 360Mbps. However, following a detailed assessment of the extent of likely commercial plans by the Department, it became evident that significant areas of the State would not get the commercial investment required due to the dispersed nature of premises in these areas. This lack of commercial investment, where there are clear socio-economic benefits to be gained, is captured by the economic term "market failure". The extent of this market failure was crystallised by the Department in November 2014 when a map was published showing where the commercial sector has committed to invest and identifying areas where there was no private sector commitment[7]. The Department's High Speed Broadband Map identifies those parts of the country that will not have access to high-speed broadband in the absence of State funding. Any funding provided by the State for the delivery of these services would be considered a significant intervention in a commercial market and would require State Aid approval from the European Commission ("EC").

1.2 Objectives of the NBP Intervention

The National Broadband Plan, articulated an objective of attaining "*a minimum of 30Mbps for every remaining home and business in the country – no matter how rural or remote*". The rational underlying this aim was the belief that widespread access to high speed broadband is essential in realising substantial socio-economic benefits and for supporting the delivery of other Government policies. It is also supports the EU's Digital Agenda for Europe which aims to deliver 30 Mbps or more for all EU citizens by 2020.

The Government's objectives for the intervention are firstly to deliver a high quality and reliable, open access wholesale broadband network offering customers a choice of services and service providers and secondly to deliver a network which is future-proofed so to bridge the digital divide in the long term. The Government aims to secure best value for money by:

- leveraging significant additional private sector investment
- reusing existing infrastructure wherever possible

The DCENR's objectives of the State-led Intervention under the National Broadband Plan are as follows:

[6] The report is located on DCENR's website on the following link http://www.dcenr.gov.ie/communications/SiteCollectionDocuments/Broadband/National%20Broadband%20Plan.pdf

[7] See www.broadband.gov.ie

Table 1: Programme objectives and sub-objectives

Objective	Sub-Objective
Develop intervention strategy for areas where commercial operators will not deliver high speed broadband	Deliver intervention as soon as possible to ensure a national high-speed broadband network for Ireland.
Provide high quality and reliable broadband services	Every home/business to have access to high-speed broadband with choice of service providers. Ensure network can meet current and future data demand.
Value for Money	Design economically advantageous procurement strategy. Maximise re-use of existing infrastructure. Incentivise additional commercial investment.
Underpin Government policy on economic recovery and jobs	Stimulate retention/growth in jobs, enable farming, e-health, trading online, e-education, tourism, savings for consumers etc.

1.3 Status of the Communications Market in the Intervention Area in 2016

The State plans to invest a significant amount of capital in building what is considered to be critical broadband infrastructure in rural areas of Ireland for the 21st century. It has often been compared[8] to rural electrification of Ireland in the 20th century and is expected to reap a significant economic benefit both financially and socially.

The commercial sector has to date invested over €2billion in the towns and cities of Ireland to ensure the required network is provided. Therefore, there should be no need for the State to intervene, as there is no market failure outside of the Intervention Area.

The overview of the Irish market, detailed in Appendix III, identifies that there is a significant mix of networks and operators across the State. The incumbent, eir, remains the only national network provider of fixed voice services with a telephone line to any premises that requires one. This copper infrastructure, built predominantly overhead with poles, cannot provide high-speed broadband. It requires a significant upgrade in rural areas, which is very costly. Given the low density of the Irish rural area there is not, based on the analysis carried out by DCENR to date, a business case for eir to invest in this upgrade nationally.

However, eir and other commercial operators have said that with the benefit of a commercial stimulus from the State, they would be prepared to provide significant private capital. This is because they believe demand is such that over the longer term the network, once built, would be commercially viable.

The objectives set out to date by the Department, to address the market failure identified was not to provide capital for a totally new network with the assumption of a "green" field site. Much of the required infrastructure is in place but requires a significant upgrade. For example, there is a

[8] See opinions on the NBP by Muintir na Tire http://muintir.ie/save-rural-ireland/rural-broadband/ and by the Western Development Commission (WDC) http://www.wdc.ie/high-speed-broadband-deployment-capital-investment-rural-areas-and-the-minimum-standard/

significant amount of poles, towers, masts and ducts available across rural Ireland that can be rented from the commercial companies that own them.

Where the State decides it is desirable to own the assets invested in, these assets are likely to be an increment (albeit significant) to already existing assets rented from the private owners. The complexities of the network maximising the use of existing assets further complicates the identification and management of the assets that would be owned by the State at the end of the contract.

The State could buy back the assets of commercial operators where the operators are willing to sell them and where it makes economic sense for the State to do this to ensure that the NBP objectives are met. However, any such approach is likely to be extremely expensive and disruptive to the market where these private assets are utilised for other services, for example voice services, basic broadband, energy distribution, mobile services etc. It is also likely that where these assets are required by the State and have free capacity such operators should be very much open to renting the assets to the State (or any Winning Bidder(s) on behalf of the State). Also if such assets were bought they, or capacity on the assets, would have to be rented back to the private sector with the State becoming a significant landlord in the telecoms market.

While the amber area identified to date covers approximately 96% of the geographic territory of the State, it represents less than 30% of the premises. The Intervention Area and any assets funded by the State in the Intervention Area will rely on connecting with networks in other areas that are contiguous to it.

1.4 Ownership Options

DCENR commissioned KPMG to provide a report examining the Ownership options as potential vehicles for delivering the Government's National Broadband Intervention Strategy. They identified five options in their report which were part of the public consultation in July 2015 on and considered in detail by Government in 2015.

Following a Government decision in December 2015, three options were discounted and two options (Options 1 and 2) remain under consideration. For completeness, the five options considered are set out below:

Option 1: Private sector build, finance, own and operate with obligations (Gap Funding)

Key features:

- Government contracts with a private sector partner who will finance, design, build, own and operate the broadband infrastructure.
- A capital subsidy will be paid to the private sector operator through grants, which are paid during deployment and through the operational life of the contract.

- The grant amount will be the minimum amount necessary for the private sector to deliver the project whilst also making an acceptable rate of return, and will be subject to clawback mechanisms that track actual financial performance against forecast during network build, operations and at contract expiry.
- The private sector partner bears the risk associated with wholesale network deployment, operation and exploitation over the 25 year contract term and beyond, and the payments of capital grant (upfront and during operation) are subject to the operator meeting the performance standards set out in the contract.
- The private sector retains ownership of the network at the end of the 25 year contract.

Option 2: Private sector finance, build and operate with asset reversion (Full Concession)

Key features:

- Government contracts with a private sector partner who will finance, design, build and operate the broadband infrastructure.
- The private sector will derive economic benefit from the infrastructure for the duration of the contract.
- At the expiry of the contract, ownership will revert to the public sector (at no additional cost).
- On a similar basis to the Gap Funding option, capital subsidy will be paid to the private sector operator during deployment and through the operational life of the contract. The payments will be the minimum amount necessary for the private sector to deliver the project whilst also making an acceptable rate of return during the concession period, and will be subject to clawback mechanisms that track actual financial performance against forecast during network build and operations. These payments will however be higher than Option 1 Gap Funding to reflect the fact that the asset reverts back to the State at the expiry of the contract.
- The private sector bears the risk associated with wholesale network deployment, operation and exploitation over the 25 year contract term and the payments of subsidy (upfront and during operation) are subject to the operator meeting the performance standards in the contract.

Option 3: A Corporate joint venture ("JV")

Key features:

- The Government and a private sector partner form a JV which will design, build and operate the wholesale network.

- Both parties own equity in the entity and split the risks and rewards of ownership. Equity is invested by the State and the private sector over the deployment period in proportion to their shareholdings.

- The State will also pay a social policy objective grant to the JV during the contract term. The grant is sized to address the commercial viability gap associated with the wholesale investment and, as above, the grant payments will be subject to the JV meeting specified service levels and contractual obligations.

- Two JV scenarios were modelled in the financial appraisal, the core scenario being a 50/50 joint venture with the alternative being a Public Sector Minority Interest scenario (where the private sector owns a 75% stake and Government a 25% stake).

- In these joint ownership scenarios, the private and public sectors share the responsibility of the network deployment and the risks and rewards of network operation and commercial exploitation.

- These risks and rewards are shared in the proportion of their respective ownership stakes in the business. The private sector's capacity and capabilities are somewhat leveraged in the joint ownership scenarios, but not to the same extent that they would be in a 100% private ownership model.

Option 4: Public sector finance and own with private sector design, build and operate (Operating Concession)

Key features:

- Government funds and **owns the wholesale network from day 1** and contracts with a private sector partner for the network's design, build and operation.

- The partner derives the economic benefit from the network and bears the commercial risk of wholesale operations until the expiry of the contract.

- At the end of the operating concession Government can decide to either retender the operating contract, operate the network itself or sell the network.

- The State bears the majority of risks associated with network financing, ownership and reinvestment.

Option 5: Public sector build, finance, own and operate

Key features:

- Government designs, builds, operates and owns the wholesale network, most likely through the establishment of a new Semi State entity.

- It will derive all benefits associated with development and operation of the wholesale network and assume all risk.

- There is no private sector involvement in the project beyond the contracting of network design and build and contracting for other capabilities (such as specialist advice).

In Options 4 and 5 the State builds, owns and operates the new wholesale network and either runs the network itself or procures a third party company to manage the network on its behalf. Under these options there is little or no leveraging of the capacity and capabilities of the private sector market and requires a significant State Investment over the 5 year deployment period. It is intended to recover this investment through equity returns in later years (subject to commercial operating risks). These options were considered on the assumption that a publicly owned company/concession contracted company would operate on the same or similar basis as a commercial entity operating in the Irish Next Generation Access (NGA) market with similar costs (adjusted where necessary for risks transferred back to the public sector) and revenue cash flows as the private sector options.

Analysis of the Five Ownership Options

Each of the five ownership options described above have been analysed using cost assumptions, estimated revenue and costs over 25 years, including residual and strategic values for bidders.

Options 1 and 2 assume significant matching commercial investment, with bidders only seeking a subsidy for the balance required to meet the upfront capital cost. The network, once built is expected to be profitable over the long term. Construction and demand risk remains with the private sector. The commercial operator in both models can be incentivised through Key Performance Indicators (KPIs) in the contract. Contractual clauses can ensure that the Exchequer shares in any savings against forecast capital expenditure and increases in network profits over and above those stated in the procurement process.

Options 3, 4 and 5 would ensure greater control and governance, however they will require significantly more funding in the initial build phase.

In Option 3 (JV), the State would assume greater risk exposure associated with the commercial operation of the network with both parties splitting the risks in line with ownership of the JV. The key risk for the State is the possible requirement to continue subsidising the network where costs overrun and/or demand does not materialise as forecast.

In Option 4 (Public Concession) the State assumes greater levels of risk as this requires a new green field entity to be set up and compete in the wider commercial market with both parties' returns from the operation of the infrastructure dependent on securing adequate take up and revenue and controlling operating costs and re-investment costs.

In Option 5 (Full Public Ownership), the State would also be required to fund the operational expenditure of the network up to the point where it generates enough cash be to self-funding which is likely to take circa 6+ years. The State would also be intervening in a market which it chose to exit some years ago. Such a public intervention could be met with significant challenge from the current commercial operators and the State aided public company may be very restricted in its activities to ensure distortion of the market is minimised. Some countries such as Australia have opted for a publicly owned model. In Australia this was met with a significant lack of co-operation from the incumbent operator Telstra and the State had to buy back many of the assets of Telstra and invest

significant billions of dollars in the new network company. The Australian Government had to invest significant financial resources and the intervention was not subject to the European State Aid rules.

The Government decision of December 2015 was to proceed with a Pre-Qualification Questionnaire on the two preferred ownership options - Options 1 and 2 - pending a final Government decision in early 2016.

1.5 Key Features of the 2 Ownership Options

Option 1 - Gap Funding

A key feature of Option 1 (Gap Funding) is that placing long-term ownership of the network with the private sector allows private sector bidders to leverage the use of their existing infrastructure and encourages them to continue to invest in the network to develop and exploit new markets facilitated by the wholesale network. This is likely to remain the case even if a separate legal entity is required for the delivery of the intervention. Private Sector bidders are likely to reflect these benefits in the "strategic value" that they place on winning the contract, which in a competitive tender process is likely to drive down the amount of subsidy required from Government. This is one of the key drivers behind the lower nominal subsidy requirement and NPV cost for Option 1. Tables to illustrate the subsidy requirements are included in Appendix 1 and are commercially sensitive. The Gap Funding option could require that the State rely on enduring contractual clauses[9] and regulation for the continuing broadband provision and associated access conditions after expiry of the contract. The inclusion of any such clauses will have to be balanced against any additional subsidy required by the Winning Bidder(s) for the acceptance of same.

Option 2- Full Concession

Option 2 (Full Concession) is based on similar principles to the Gap Funding option. However, there is a key distinction to the Gap Funding option. Under this option the network is designed and built by the commercial operator so that its ownership and control can revert to the State at the end of the contract period. The State would then take any long-term benefits/risks of ownership (after the 25 year contract period) and would have the ability to assure the continued provision of services in line with its policy objectives after the end of the contract term. In both models further investment may be needed to cover new premises that cannot be connected commercially. In the Full Concession model the State could procure for another "Concessionaire" to continue to deliver the services required. Under the Gap Funding model the State may not be in as good a position to run a competitive tender upon the expiration of the original 25 year contract compared to the Full Concession model where the asset reverts back to the State.

Similarly to the Gap Funding option, DCENR is likely to require that the network is designed such that, in the event of contract termination, the Government can "step-in" to operate the network or have the network operated by another operator (e.g. through the acquisition of the assets (taking account of the subsidy already paid) or the payment of access charges).

[9] Subject to legal advice on such clauses and the effect on the level of subvention required

The Full Concession option is likely to require significant additional subsidy (detailed in Appendix 1) over the term of the contract. The State will also bear any risk of future technology obsolescence (i.e. the risk that in 25 years' time the returned network may no longer be the most efficient and cost effective means of delivering the State's policy objectives). The State will also bear the long-term risks associated with managing, maintaining and operating the network and the risk of ensuring that the network's continuing ability to be able to rely on any third party infrastructure to which it is connected.

The Full Concession model may however allow for more effective governance and co-operation of the Winning Bidder(s) where they are aware that the assets will revert to the State and they may want to be in a good position to win any subsequent tender or to get an extension to their existing contract. Where the Winning Bidder(s) has a history of poor performance, poor investment or material non-compliance it may not consider itself to be in a good position to do this. However in a Gap Funding model the Winning Bidder(s) will own the asset outright and so have a greater incentive to maintain and invest in the network.

Section 2- Options Analysis

2.1 Benefits, Risks, Advantages and Disadvantages of the Options

2.1.1 Gap Funding Option

A key benefit of Option 1 (Gap Funding) is its affordability relative to the other options. This approach is likely to require significantly less subvention than Full Concession reflecting the fact that the assets remain in the control of the Winning Bidder(s) at contract expiry.

Not all of the risks considered are financial and a review was carried out to look at the advantages, disadvantages and risks of the ownership options considered. The Table 2.1 and 2.2 below present these findings for each of the options. Table 2.3 illustrates findings that are common to both options.

Table 2.1 Gap Funding: Advantage, Disadvantages and Risks

Advantages	Disadvantages	Risks borne by the State
Lowest estimated State subsidy required. State's risk exposure is minimized. Incentivises full integration with existing business and infrastructure, enabling efficiencies. Maximises strategic value for private sector, thereby increasing competition and reducing the level of public subsidy required. Private sector is incentivised through contract and long term ownership to invest in network and to diversify, driving further revenues and future proofing the network and wholesale services. Long term obsolescence risk transferred to private sector.	The State would receive no stake in the ownership of the infrastructure at the end of the contract despite having contributed significant sums of money towards its construction. Following the end of the contract after 25 years, the contractual obligations would fall away and the continued performance of the services will depend on: (i) continuing demand for the service; (ii) the service continuing to be the best way of meeting the demand; (iii) commercial viability and incentives for the operator; and (iv) whether the operator is subject to regulation	Risk borne by State in contract is limited to financing the Gap Funding. Relies on strong commercial and contractual incentives to deliver high quality, compliant services over term At the end of the contract the private sector partner would own all assets created and would have the right to invest in and exploit the network. The operator would not be obliged to provide services or operate in a non-discriminatory manner after the expiry of the contract. The State therefore lacks control over delivery of policy objectives across the network at the end of the contract.

The mitigating factors to the risks above include that the State may receive a share of any upside benefit in the financial performance / value of the network through clawback mechanisms; State Aid regulations provide for continuing network access and should the operator be found to have significant market power they will be subject to further regulatory obligations.

2.1.2 Full Concession Option

The key advantage of the Full Concession option is the control over the network for the delivery of future policy objectives after contract expiry

Table 2.2 Full Concession: Advantage, Disadvantages and Risks

Advantages	Disadvantages	Risks borne by the State
State's exposure to risk is minimised during construction and operating periods, with the private sector bearing risks that it is well placed to manage. Allows integration with private sector's existing business and infrastructure for the duration of the contract thereby securing efficiencies, but the level of integration and efficiency achieved may be constrained by the requirement for assets to revert to the State at the end of the contract. State would receive control and ownership of the network at the end of the contract term and is able to ensure that the services continue to be provided in a non-discriminatory manner. State would maximise its control over the delivery of its policy objectives after the end of the contract term, to the extent that the network continues to be the right solution for delivering these (taking into account potential	State pays a higher subsidy than Gap Funding in order for asset to revert to State ownership post-contract Limited commercial incentive for operator to invest in network or in growing the business in the later years of the contract term. Strong contractual provisions required to ensure planned investment and future proofing and to ensure network reverts in satisfactory condition. State has limited experience of operating NGA networks and may have to re-tender at end of contract. State bears risk of technology obsolescence over 25 years. Requirement for reversion of the network to the State reduces the degree to which the network can leverage / be fully integrated with existing business and infrastructure,	Risk borne by State in contract is primarily limited to funding the subsidy requirement of the full concession contract. State will also bear some risk in relation to the condition of the network at reversion. Relies on strong commercial and contractual incentives to deliver high quality, compliant services over term and to ensure that the network is fully maintained and that planned investment and future proofing is undertaken all the way to the end of the contract term. The State would assume risk associated with the long term ownership of the infrastructure. State bears technology obsolescence risk and long term demand risk (beyond the contract period) which may not be factored in by Bidders when calculating the subsidy they require upfront.

advances in technology over 25 years)	enabling efficiencies.	

The mitigating factors to the risks above include that the State may include contractual clauses relating to ongoing investment in the network including in the later years of the contract ,and financial penalties relating to the stae of the network at time of reversion.

The following table outlines the advantages, disadvantages and risks that are common to both ownership options.

Table 2.3 Common Features: Advantage, Disadvantages and Risks

Advantages	Disadvantages	Risks borne by the State
Ability to have a lower level of State subvention / investment in the first 5 years and to spread a proportion of the subvention over the contract term. Utilises specialist know-how within private sector, thereby mitigating risk. Provides contractual (financial) and commercial incentives for private sector to perform to standards. State would aim to receive appropriate share of financial benefits through various clawback mechanisms. Fits with current market structure and is deliverable (based on experience and market feedback)	State's control is limited to / dependent on the contract governance regime. The State is therefore reliant on strong contract mechanisms and strong contract management to ensure the Winning Bidder(s) complies with the full range of performance standards including service levels, future proofing of network, equality of treatment for Retail Service Providers (RSPs) and to facilitate increasing competition.	Private sector bears all of the delivery risk under the contract. State would carry reputation and policy risk of contract failure but financial risk of failure borne by private sector (hence strong financial standing is required) In the event of financial distress to the Winning Bidder(s) there is a risk that non-commercial pressure could lead to the State having to meet all of the Winning Bidder's customer obligations on an uneconomic basis, which could have a significant impact on the public finances.

The advantages in Table 2.2 above show that the Full Concession model would allow the State to have more control over the delivery of policy objectives after the contract expiry. The additional costs associated with this option are detailed in Appendix 1. As well as the additional costs, the State would also assume more risks; future technological developments in the communications market over the next 25 years may lead to a network being returned with limited further value. The value of the network to be returned to the State is further lessened by the fact that it is reliant on the infrastructure of other operators to provide services. In addition, demand risk would also revert to the State; the State will therefore have to decide whether to extend the contract, retender for a new operator, manage the asset itself or sell the asset. The network may require additional investments to maintain services, this may involve further State investment and State Aid support.

The choices available however may be limited by market developments, the level of competition in the Intervention Area may have increased, thereby limiting the value of any new concession agreement which may require further State intervention and/or limit commercial interest in the operation of the network. Similarly, the Intervention Area may be just served by the contractor and any new Concessionaire may be more lucrative in 25 years. However, such developments are not possible to predict at this stage.

2.1.3 Risks to the State in the event of non-Compliance

DCENR has sought legal advice with regard to potential risks to the State of entering into a contract with commercial operators, regardless of the ownership option, where they could:

1. Get into financial difficultly during the term of the contract
2. Fall into material non-compliance with the term of the contract such that the State may wish to terminate the contract,
3. Other possible issues around national security of the network and public policy issues.

An important element of the Strategy is to ensure that a "ring fenced" limited company is set up by the Winning Bidder(s) to manage the design, build and operation of the network and to report all income, expenditure and assets held under the Winning Bidder(s) from its incorporation to contract expiry. This should provide further assurance that either the assets or the shares of the company can revert the State in an emergency scenario. It would be important that the Department could immediately appoint an alternative operator to continue with the service provision to end users.

The ultimate answer to providing risk mitigation measures rests with introducing step in rights to the assets and /or a charge over shares in the "ring fenced" limited company. This should ensure that the broadband services continue to be provided and the State does not lose its investment in the event of such issues arising over the term of the contract or contracts.

Step-in rights over third party assets, whether under the Gap Funding model or the Full Concession model represent a very complicated proposal given the mix of assets involved and the number of wholesale and retail operators interconnected with the network. Where a Winning Bidder(s) goes into default or there is termination of the contract this will likely lead to a significant burden on the Department to ensure continuity of service to consumers/business. Other issues such as the availability of the Emergency call services would also have to be addressed.

The only means to mitigate any risk of poor governance, lack of control over the assets in their entirety is to revert to a "public" ownership type model which as well as being significantly more expensive also involves the transfer of a significant range of risks to the State.

2.2 Non-Financial Appraisal

This section contains a description of the non-financial characteristics of the two ownership options. In their Ownership report, KPMG identify six non-financial criteria to facilitate the appraisal of the various ownership options against the objectives of the NBI strategy. These criteria are as follows:

Table 2.2 Non-financial criteria

	Criteria	Details
Criterion 1	Coverage	Secures NGA coverage for 100% of premises within the target timescale
Criterion 2	Market effectiveness	Supports open access, effective competition at a retail level, provides effective controls and safeguards to protect against discrimination / market abuse
Criterion 3	Incentives to invest	Incentivises investment in, and future proofing of, the wholesale network and in the development and growth of the wholesale business. It also minimises the need for further intervention by the public sector in the future.
Criterion 4	Protects the public interest	Provides safeguards to protect against over subsidisation and poor performance. Ensures continuation of service post contract term and that the public sector receives an appropriate share of any additional financial benefits
Criterion 5	Deliverability of ownership options	Attractive and deliverable in the market, legally viable and commercially deliverable in a short timeframe. This criterion also considers the scale and complexity of governance arrangements / management requirements for the public sector
Criterion 6	Managing Risks	Risks are allocated to the party best able to manage and mitigate them. Considers which option best utilises specialist sector expertise to optimise delivery of the intervention

In their report KPMG assess all ownership options and award marks accordingly. In their analysis, Gap Funding is given the highest weighted score in their appraisal, followed by Full Concession model and Option 4 (Operating Concession). This section builds on the issues raised from the assessments against the criteria however the analysis may differ in aspects to the KPMG report.

1. Coverage

Under the coverage criterion, both options are ranked equally for the duration of the contract. The contract will include financial incentives to ensure timely deployment of a reliable infrastructure that will guarantee 100% coverage. However, after the duration of the contract in the Gap Funding model there is no guarantee that universal coverage will be available to premises that remain non-commercial. On the other hand, Government control of the network under the Full Concession would mean universal coverage is more likely to be available through the award of a subsequent concession contract. This may however require further funding or regulatory measures.

2. Market effectiveness benefits

Market effectiveness is of crucial importance to the State both during and beyond the duration of the contract. Having fair and effective competition on the network for Retail Service Providers and consumers will reduce the likelihood of discrimination and market abuse and therefore reduce the necessity of further State intervention. It will also support the development of new products and services and therefore increase the value of the long-term value of the network. Gap Funding ranks highly for this criterion, as contractual obligations will support open access and support effective competition at a retail level. However, after the contract has expired such obligations will not be in place, effective regulation may therefore have a critical role to play at this juncture. . Full Concession on the other hand has the additional benefit of the control reverting to the State which will mean it will be in a better position to ensure these obligations continue to be applied.

3. Incentive to invest

Under Gap Funding, private sector ownership will give a strong incentive to invest in the network as the company is likely to be supported by contractual obligations and remedies including service credits. Full Concession however may limit the commercial incentive for the operator to reinvest in the network or to grow the wholesale business particularly in the later years of the contract where it is at risk of losing it customer base. Stronger contractual obligations will therefore be required in order to ensure planned investment and future proofing of the network takes place.

4. Protects the Public Interest

The contract under Gap Funding is envisaged to contain provisions to ensure significant protections to the State so that the private sector operator is incentivised to perform. It will also include the inclusion of clawback, profit share and terminal value mechanisms which will mean the State will benefit from any capital savings, increases in net revenues or increases in long term values. However after the expiry of the contract such obligations will cease be in effect. Full Concession has the added benefit of being able to provide State control of the network and therefore the ability to ensure continued provision of services. The value to the State of this benefit is currently unclear as potential advances in technology may present alternatives of facilitating future connectivity policy goals.

5. Deliverability of ownership options

Gap Funding has a short term benefit to the State of as it is foreseen that it will be a less complex procurement than that of Full Concession which will require issues concerning the reversion of assets to be settled.

6. Managing risk

Long term benefits arise to the State under Gap Funding as it will be the private sector operator which be exposed to financial risk, technological obsolescence risk and long term demand risk (beyond the contract period).

Furthermore, the State will avoid the added risk faced under Full Concession of the condition of the Network and the status of the third party access arrangements at the time of reversion as being unsatisfactory. In contrast to other State infrastructure (for example the Metropolitan Area networks), the NBP network will not be a standalone asset. The assets of the NBP will comprise of specific assets (e.g. poles, fibre pairs, towers, masts, etc.) procured under the NBP. However, there is likely to be a requirement to lease already existing telecoms assets (e.g. existing poles, ducts, towers, masts). The publicly owned assets and the leased assets will have to be ring fenced and a full asset register maintained. The ring fenced asset is unlikely to be "sellable" as it will be part of a wider network of assets owned by commercial operators.

Other criteria not mentioned the KPMG report

7. Market Appetite for each option

In order to inform the analysis of their Ownership Report KPMG conducted consultation with a variety of key NBP stakeholders. In this exercise, they discussed with potential bidders and gathered their views on the various specified ownership options. It was noted that Option 1 in particular may favour large established operators in the market over smaller operators with less infrastructure coverage. These views were echoed by operators in the Intervention Strategy consultation conducted by DCENR during the second half of 2015 whereby three of the largest operators identified their preferred option as Gap Funding and three smaller operators listed it as being the Full Concession. A summary of the responses on the ownership options is detailed in Appendix V.

8. Competition considerations

Under either model, the winner(s) of the NBP contract is likely to benefit from having monopoly status in the provision of wholesale high-speed broadband in a particular Intervention Area . In the absence of adequate regulation, there is a risk of anti-competitive behaviour, which will have a negative impact on RSPs and ultimately end-users. The contract will serve to mitigate such risk but such measures may be difficult to impose after the contract.

Under the Full Concession agreement, it is envisaged that there will be safeguards in place for the duration of the contract to prevent anti-competitive behaviour. After the reversion of the asset to the State there would be a variety of subsequent ownership possibilities available, each with their own attendant risks and advantages, for example a publically owned wholesale company that will not have incentives to favour any one entity over another when trading. Full Concession may also mean the State, post-contract, would find it easier to ensure adequate reinvestment in the network , control prices and the quality of service. The stakeholder consultation exercise revealed that there was a perception of State control of the network being important for maximising social value.

2.2.2 Gap Funding Model - services after contract expiry

Under the Gap Funding option the Winning Bidder(s) will be free to continue to serve those customers in the Intervention Area or they may chose not to serve any customer that in their view may remain uneconomic. This presents a risk to the State that a further Intervention may be required at the end of the contract for such customers. It is expected that the contract to be awarded will address any market failure into the long term, however there may be a minority of

premises or new premises that may always be uneconomic simply due to their remote location. To mitigate this risk, the Winning Bidder(s) will be required to notify the Department of any premises that they believe will always be uneconomic to serve, and to set out how they propose to treat such customers post contract award. The Department is currently seeking legal advice on whether the contract can include an "enduring" clause and the ability to enforce same, to ensure such customers will continue to receive a broadband service post-contract. If such clauses were legally acceptable, they will also need to be assessed by the level of any additional subvention that may be required by such a provision.

Regulation could also play a significant role in broadband coverage following contract expiry. ComReg, in their role as the telecommunications National Regulatory Authority could impose a Universal Service Obligation (USO) that would serve to ensure coverage and service levels would be maintained after contract expiry. However, there is currently no USO for broadband and it is not certain that any Obligation will be introduced in the medium or long term.

2.2.3 Full Concession Model - services after contract expiry

Under the Full Concession model the assets – i.e. the network, the customers and the service obligations revert to the State on the expiry of the 25-year contract. It will be the decision of the State whether it wishes to extend the original Concession agreement, run a new competitive tender process to appoint a new concessionaire, manage the network itself or sell its portion of the assets/shares in the limited company set up.

The State will not just receive the transfer of the assets but also the transfer of risk including demand risk. If demand is not as high as originally forecast at the end of the contract there may be bidders for a new concession. Similarly, if there is high demand risk, then any new tender post-contract term may require further subsidy. This could arise under Gap Funding where the commercial operator may be willing to serve such customers to avoid a tender process. In both cases the State may be required to intervene again although with the Full Concession option, the obligation to connect premises could form part of any new contract with any operator. In the Full Concession model the State will also bear the risk of future technology obsolescence (i.e. the risk that in 25 years' time the returned network may no longer be the most efficient and cost effective means of delivering the State's policy objectives). Another material risk for the State is the long-term risks associated with managing, maintaining and operating the network and ensuring that the network's ability continues to be able to rely on any third party infrastructure to which it is connected.

Obligations, if any, as a result of the possible introduction of a USO for broadband would then fall on the State or any new Concession operator making the operation of the network less commercially attractive.

2.3 Non-monetary financial considerations

2.3.1 Clawback mechanisms

State Aid guidelines suggest the use of clawback[10] mechanisms to allow for balanced sharing of unanticipated gains on projects where the aid amount is greater than €10m. For both Ownership options the amount of subsidy is capped within the contract but the KPMG Governance Report identifies clawback mechanisms at 3 different stages of the contract which may reduce this amount.

Build/Rollout Phase

In order to ensure that the capital subsidy provided is no greater than the amount of the investment that cannot be financed by the project itself on a normal commercial basis, any capital related savings that are secured during the network build phase, or an agreed % of such savings (when measured against the original forecast capital costs) should be passed on to the State through a reduction in the public subsidy.

In order to provide an incentive to the Winning Bidder(s) to conduct a highly efficient deployment, it may be appropriate to allow the operator to retain a reasonable share of the saved build costs, with the balance being passed on to the State. The proportion of savings to be held by each party will be discussed with bidder during the dialogue process (The need for such incentives is recognised in the State Aid Guidelines).

The governance process for subsidy payments must therefore place significant emphasis on there being full transparency of financial and non-financial data, with the scrutiny of forecast build costs at the procurement stage and the inclusion of mechanisms to monitor, review and adjust downwards (where appropriate) subsidy payments during deployment, based on an appropriate proportion of the build costs saved (when comparing actually costs incurred to those forecast in the procurement process).

Operational Phase

The State should receive an appropriate share of any additional financial benefits that are enabled or supported by the provision of public subsidy. This is in addition to the clawback of public subsidy in the event that the capital costs of the network build are lower than forecast at final tender stage. This would occur when the actual net revenues of the operator (i.e. EBITDA) generated with the subsidised infrastructure are greater than the Winning Bidder(s)' net revenues forecast at bid stage.

The increase in net revenues can materialise in a number of ways, greater than forecast take-up and revenue or lower than expected operating and maintenance costs, which would also include any reduction in infrastructure rental charges paid by the Winning Bidder(s).

The proportion of savings to be held by each party will be discussed with bidder during the dialogue process.

[10] EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks 2013/C 25/01 para 78 (i)

Terminal Value

Increases in terminal value (i.e. the enterprise value of the network at the end of the contract period) are likely to occur where the financial performance of the network during the contract period significantly exceeds that forecast by the Winning Bidder(s) in its tender for the NBP contract, and the strong financial performance is forecast to continue following the end of the contract term.

In a Gap Funding contract, this increase in terminal value is a benefit to the operator (who will receive the benefit of the stronger financial performance following the end of the contract term). The sharing mechanism would require the operator to share some of this additional benefit with the State on contract expiry (given the additional benefit results from a Government subsidised investment), either by payment to the Exchequer of a capital sum on expiry of the contract or by stage payments over time.

The sharing of any terminal value may operate in the following way:

- During the procurement of the contract, bidders are required to include in their financial model their forecast of the terminal value of the network at the end of the contract, together with an explanation of how this value is calculated (including assumptions regarding forecast capital and operating costs, revenues and net revenues following the end of the contract period);
- The financial performance of the network is monitored during the contract period in accordance with the financial transparency requirements within the contract;
- At the end of the contract period, DCENR and the Winning Bidder(s) would review the financial performance of the network in the years prior to the end of the contract, and compare this to the Winning Bidder(s)' original forecasts of financial performance during the contract term and following the end of the contract period (as set out in their original calculation of terminal value in the procurement); and
- This review of financial performance would be used to inform a recalculation of the terminal value of the network, using the same methodology as the Winning Bidder(s) used in the procurement. Any increase in terminal value (when compared to the value provided by the operator during the procurement) would be shared between the parties (the percentage shares are to be agreed during the procurement).

There was some pushback from industry in the strategy consultation in respect of this proposal, and in order to ensure that it does not disproportionally increase the initial subsidy costs, any clawback may allow an initial gain to the operator before the sharing of any financial benefit. Any such parameters will form a part of the competitive dialogue process.

This mechanism in not required for the Full Concession ownership option as the enterprise reverts to State ownership, however the Concessionaire operator may look for a similar arrangement with the State to share in any upside they have added to the network.

2.3.2 Risk transfer

The KPMG report analysed the key financial risks across the various ownership options and compares the Gap Funding and Full Concession options. The principal difference is that the risk of the Terminal Value being lower than forecast lies solely with the State for the Full Concession model.

Table A.1.1. Allocation of key risks

Allocation of key risks	Gap Funding/ Commercial Stimulus	Full Concession
Higher than projected build costs	Private sector	Private sector
Cost/penalties of build delays	Private sector	Private sector
Higher than projected operating expenditure	Private sector	Private sector
Higher than projected infrastructure rental costs	Private sector	Private sector
Lower take up/revenues	Private sector	Private sector
Lower product pricing	Private sector	Private sector
Lower than predicted Terminal Value	Private sector	State

2.3.3 Sharing of Financial Benefit

The clawback mechanisms detailed in A.1.4 will apply to both of the ownership models meaning that the State had a share of any financial benefit across both Gap Funding and Full Concession models.

Table A.1.2. Allocation of key benefits

Allocation of key financial benefits	Gap Funding/ Commercial Stimulus	Full Concession
Lower than projected build costs	Shared	Shared
Build and/or take up is faster than planned	Shared	Shared – smaller % for the State
Lower than projected operating expenditure	Shared	Shared – smaller % for the State
Lower than projected infrastructure rental costs	Shared	Shared – smaller % for the State
Higher take up/revenues	Shared	Shared – smaller % for the State
Higher product pricing	Shared	Shared
Higher than predicted Terminal Value	Shared	State/shared*

*The KMPG report assumes that the asset will revert to the State at Year 25 at no cost to the State, but as detailed in Appendix 1 above there may be a requirement in a Full Concession model for a

payment to the Concessionaire on the transfer of assets to include the wholesale customer base of the outgoing Winning Bidder(s).

The percentage of the benefit to be shared will be dependent on the ownership model. In the case of savings relating to the speed of the deployment of the infrastructure and higher than expected take-up of high-speed broadband, a Concessionaire holder would expect a greater proportion of any benefit as their interest in the network ends at Year 25, whereas a successful Gap Funding operator will continue to receive the benefits after Year 25.

2.3.4 Government Accounting Treatment of Gap Funding Option versus Full Concession Option

The treatment of any funding for the State intervention in the funding of broadband networks is also an important consideration to the State from a fiscal view point. For all capital projects funded or part funded by the State, it is important to determine where the assets and liabilities will sit with regard to the overall project cost and debt. It is the preliminary view of the Department, following consultation with the Department of Finance Statistics Unit, that the Gap Funding model is more likely to be "off" Balance Sheet whereas the Full Concession model has a higher risk of being "on" Balance Sheet.

The main reasons for the view are related to:

i) financing - the Full Concession model will require a significantly higher level of financing from the State to reflect the fact that the assets revert to State Ownership after 25 years, and

ii) the likely level of control the State will exert over the commercial entity and the network.

The Full Concession model is likely to be seen as a more invasive intervention in the market where the State plans to take back the relevant assets at the end of the contract, which will in effect place much of the control of the network under the remit of the State. Under the Gap Funding model, all control will reside with the commercial sector (subject of course to whether the company or companies owning the network are regulated and controls detailed within this document). The Department has initiated, through the Department of Finance Statistics Unit, the ex-ante classification process with the Central Statistics Office on the proposed Ownership models.

2.4 Ownership Report – KPMG recommendation

The KPMG report recommended the adoption of Option 1 (Gap Funding) for the delivery of the Government's National Broadband Intervention Strategy, with Option 2 (Full Concession) as the alternative for Government to consider. This recommendation was predicated on the Government

putting in place robust procurement and contract management arrangements, as described in the KPMG Governance Report[11].

In December 2015, the Government Decision (Uimhir Thagartha: S180/20/10/1453A) approved the commencement of the procurement process. Under the first stage, bidders were invited to Pre-Qualify under bother Gap Funding and Full Concession ownership models. DCENR also undertook to revert to Government with a firm recommendation on the ownership model preferred for the tender process, prior to shortlisting the qualifying bidders from the Procurement Pre-Qualification Questionnaire (PQQ) process.

A key decision for Government therefore is, whether the future assurance and long term benefits offered by the wholesale network reverting to State ownership in 25 years' time (under the Full Concession option), is worth the significant additional nominal subsidy investment.

2.5 State aid and the ownership options

Ireland, together with all other Member States is required to comply with State Aid rules to ensure any intervention into a market or any aid provided to a commercial company in a market does not give rise to anti-competitive effects and is compatible with the rules of the internal market. In 2013, the EC set out clear State aid Guidelines[12] to Member States specific to intervening in markets relating to broadband networks. These Guidelines provide Member States with a clear list of protection measures that should be in place to ensure any State aid used will get EC approval.

Gap Funding and similar such grants normally constitute State aid within the meaning of Article 107(1) TFEU[13]. This is because the funding involves the diversion of State resources to a private sector operator(s) that gives their business an advantage under conditions of which would not otherwise have been available on the market. Similarly, a Full Concession model approach is also highly likely to constitute State aid as it involves the selection of a private operator to exploit the network at the wholesale level.

Under both options (Gap Funding and Full Concession) the operator managing and exploiting the network as well as any third-party electronic communication providers seeking wholesale access to the network would be considered to be "aid beneficiaries".

Analysis conducted by PwC on behalf of DCENR in relation to broadband interventions demonstrated that a Gap Funding model is more typically used in similar interventions[14]. However, the EC does not recommend one model over another and the decision to authorise the granting of State aid is made on a case-by-case basis. Interactions with the DG Competition case team (who are overseeing

[11] The report was published on DCENR's website and is available on the following link: http://www.dcenr.gov.ie/communications/Lists/Consultations%20Documents/NBP%20Intervention%20Strategy%20consultation%20reports/Ownership%20Report.pdf .

[12] OJ C25/01 , 26.1.2013 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:en:PDF

[13] OJ C 326/47, 26.10.2012 http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=EN

[14] NBP Ireland- State Aid Compliance Report- December 2015 update , PWC (2015)

the State aid notification of the NBP) on both ownership options have been positive and they have not recommended DCENR to follow one option over another.

2.6 Ownership Models from previous State Interventions

The Irish State has intervened in the telecoms market in many different ways. Two such interventions are explained in Appendix II. These are

- National Broadband Scheme (NBS)- Gap Funded model
- Metropolitan Area Network (MANs)- Full Concession model

Generally, the approach taken to Ownership was dependent on the type of intervention and the appetite of the commercial sector to co-invest with the State.

For the NBS there was a tender process run in which the commercial sector had a clear appetite to invest with the State and to roll out basic broadband services.

In the case of the MANs there was a restriction imposed so that no existing licensed Irish telecoms operators could bid. They were also restricted from operating in the retail market and were limited to being a wholesale supplier to other telecommunications RSPs. The incumbent operator at the time therefore was unable to participate as part of procurement process. Following a competitive process, a formal contract was entered into in June 2004 and the winning bidder was appointed to manage market and operate the networks on behalf of the State.

2.7 Other State assets considered of national importance and relevance to the NBP

The rationale for the State owning a section of telecommunications infrastructure is linked to traditional motivations for Government intervention in markets. A strong body of research on market failures suggest a variety of reasons whereby Government may intervene in a market that is consistently producing outcomes that are not socially optimal. Remedies to address market failure however do not result solely with State ownership, which is often seen as a "last resort" measure. More appropriate instruments may involve removal of barriers to entry, additional taxation, subsidisation or the creation of property rights or changes to regulation.

In their review of the sale of State assets, a policy paper[15] by economists in the ESRI put forward the key questions for assessing the appropriateness of State ownership of a particular asset. They suggest that if public policy objectives require outcomes from a market that is a natural monopoly then State ownership of the entity operating in that market may be appropriate.

[15] See Gorecki, Paul K., Sean Lyons, and Richard SJ Tol. "Public policy towards the sale of state assets in troubled times: Lessons from the Irish experience." Utilities Policy 19.3 (2011): 193-201.

Natural monopolies are characterised by goods which feature an extremely high fixed cost to distribute. Since such costs are sunk it may be more efficient to have only one firm in the market as competition could involve a needless duplication of resources. Relevant examples in the Irish context are the electricity and gas transmission and distribution networks, both of which are State owned. It should be noted however that State ownership of such assets does not guarantee an adequate provision of service and therefore many are also required to be subject to regulation.

Furthermore, it is worth noting that even robust cases for State ownership of an asset can be liable to change over time due to various technological and economic developments. For instance, the ESB was originally established as a State owned enterprise arising from the necessity to control a monopoly supplier of electricity and in order to ensure rural electrification which might not have occurred otherwise. However, since then there have been considerable developments in the market including the entry of new generators and network interconnection, leaving only the transmission and distribution network as a natural monopoly.

In the telecommunications sector the "networks" were already privatised, whereas in other networks such as gas and electricity the State was building from a "green field" starting point. If the State arrived at owning network assets in the telecoms sector, it will only own a partial asset that is dependent on other, privately owned networks.

2.8 International experience of different ownership options

A wide variety of Ownership approaches have been taken by Governments in recent years to intervene in the wholesale market for high speed broadband. Annex VI summarises a selection of these measures. The choice adopted by a country on a particular measure can be contingent on a wide variety of reasons such as affordability, degree of competition, regulatory boundaries (including State Aid rules), existing relevant infrastructure, the degree of population dispersal etc. Joint ventures are common throughout Europe (i.e. Progetto B.U.L. Lombardia and Auvergne Haut Debit). "Gap Funding" is the preferred ownership option in the UK[16]). Gap Funding is also being pursued in many regional broadband interventions in Germany.

Outside of the EU, the United States applied a mixture of State funding and giving a "regulatory holiday" to incentivise investment[17]. Australia and New Zealand's adopted similar approaches whereby both countries structurally separated the incumbent operators and began to use publically owned vehicles to deploy nationwide fibre networks. The Australian intervention has been described by OECD as "arguably the most ambitious broadband funding project undertaken by a Government[18]" but is not without controversy. The public sector bears a substantial share of the

[16] See State aid SA.33671 (2012/N)

[17] See OECD (2014), DAF/COMP/WP2/WD(2014)10
http://ec.europa.eu/competition/international/multilateral/2014_jun_broadband_networks_en.pdf

[18] See OECD (2013), "Broadband Networks and Open Access", OECD Digital Economy Papers, No. 218, OECD Publishing. http://dx.doi.org/10.1787/5k49qgz7crmr-en

project risk and its costs are expected to overrun to nearly double the initial expected estimates[19]. Canada is also pursuing a Gap Funding approach for its "Connecting Canadians" programme. However the target level for 2019 of download speeds in rural and remote areas is 5Mbps and arguably would not be considered "high-speed[20]".

2.9 Practicalities of Asset Reversion

Asset reversion at the end of the contract is an important aspect of the Ownership model consideration. Since under EU State aid guidelines, the procurement process must be "technology neutral" bidders are entitled to propose any technology (or technologies) that meet the tender requirements in terms of coverage, speed and any relevant quality of service requirements. It is therefore not certain what assets will be in place at the termination of the contract until the end of the procurement. Notwithstanding the technological uncertainty it is possible to review the asset reversion characteristics.

2.8.1 Relevant assets for reversion

For the purposes of clear governance, the assets have been classified into subsets containing i) Network Physical Assets, ii) Contractual Agreements and iii) Intellectual Property.

I. **Network Physical Assets** (i.e. Initial Network, Network Upgrades, Network Enhancements etc.)

A clear inventory of both active and passive network assets will be logged during the initial network rollout phase. The inventory database would have to be maintained for upgrades, maintenance and enhancements so that in the event of step-in or asset reversion the physical assets are clearly identifiable. Network Physical Assets have a fixed lifespan, after which they would have to be upgraded or replaced. There will be a requirement on bidders to ensure that the assets are within the recommended lifespan at the either of the contract.

II. **Network Dependencies and Contractual Agreements** (i.e. Interconnects Blue/Amber Areas, Amber Area Changes, Intra-blue areas, rental agreements, wholesale agreements, other contracts etc.)

A Network Dependency consists of any interconnect agreement or inter-operator connections that would interface the NBP network and into another operators network such as the backhaul provider or international connectivity. Without these interconnections the NBP network would cease to function i.e. it would become an isolated network. The NBP network needs to ensure that in situations where other operators' network assets are used for backhaul, these assets must be clearly identifiable so that in the event of step-in or asset reversion the assets can be reused or replaced with a similar regulated product.

[19] See the Sydney Morning Herald, February 2015, http://www.smh.com.au/federal-politics/political-news/nbn-malcolm-turnbulls-faster-cheaper-rollout-falters-20160228-gn5l0s.html

[20] http://www.ic.gc.ca/eic/site/028.nsf/eng/h_00587.html

III. **Intellectual Property** (i.e. Transfer of Process, OSS/BSS functions, Knowledge People Skills, Customer Database)

The Intellectual Property assets refer to the people, processes and systems involved in running the end to end operation. These assets typically reside in the operator organisation and core systems. Any operational considerations would have to be transferred in the event of step-in or asset reversion in order to ensure network integrity on contract term.

2.8.2 Full Concession Model

Under the Full Concession model the private sector will derive economic benefit from the infrastructure for the duration of the Contract at the end of which point the assets will revert to the State. The assets can then be retendered for another fixed period or sold. The main aspects to asset reversion under this model would be as follows:

1. Maintaining Asset Log/Register
The Concession model implies that an asset register (or log) of those listed in 2.8.1 is kept up to date by the operator and that the assets are separated from the incumbents' other assets upon completion of the contract. This can be very complex where assets are widely dispersed across the State. This is the experience with MANs assets, which has proven to be very complicated.

2. Third-part involvement
Compared to the Gap Funding model, there would be additional costs such as third party monitoring associated with the management of the assets. At the end of the contract the assets would have to be transferable under a transfer of ownership agreement to the state or to a new concession agent. At the end of the contract, a right to transfer contracts, personnel and subcontractors would have to be stated in the Full Concession model. This may have to change over the lifetime of the contract as the network is upgraded.

3. Ensure Solution Remains Fit for Purpose through Claw Back and Future Proofing
There would be an increased risk of any assets being used past predicted lifetime (or "sweated") associated with the Full Concession model as this would keep the operator's networks costs to a minimum and at term the Government would be left with a weak asset.

The assets and infrastructure would have to be maintained correctly during the course of the contract in line with best practice governance procedures in order to ensure the asset was still viable upon completion on term of the agreement. This would ensure the assets were not exhausted before the completion term of the contract without provision for asset renewal. In order to ensure that the solution remains fit for purpose any the risks could be mitigated by using a range of incentives such as the claw back incentives used on the MANs network. This claw back incentive ensures that any network enhancement expenditure is accumulated for payment either after an agreed period or at the end of the contract.

For example in the case of the MANS phase II, there is a 3 year claw back payable by the DCENR on Managed Service Entity ("MSE") expenditure on enhancing MANs phase II from the third last year of the contract starting at a rate of a 1/3rd refund for enhancement expenditure in the third last year, increasing to a 2/3rd rate in the 2nd last year and a 100% refund in the last year of the contract.

The future proofing requirements of the technologies deployed would have to ensure that there is clear technical roadmap over the lifespan of the NBP.

4. Asset Transfer/Step in Rights/Exit plan without any degradation of the existing service

At the end of the contract or via a step-in, there must be the ability to transfer infrastructure (including those upgraded during the course of the contract and financed by the concession agent), contracts, personnel, and subcontractors over to the Government without any interruption of services and this would have to be stated in the contract. This would be achieved via an approved exit plan in which each of the network assets would be defined and categorised in order to ensure a stable ownership transition.

In France, six months before the end of an asset reversion contract all technical and commercial data must be transferred from the existing concession agent to the new concession agent without any degradation of the existing service, the transfer of the data and any incurred costs associated with the transfer of information is covered in the existing concession agent's contract. The French telecom regulator (ARCEP) commissioned a study which stated that the Telecom equipment evolution life cycle (approx. 5 years) for the terminal telecom technology does not easily fit into a long term (>20 year) investment model and furthermore the contract must be rigorous in this regard to ensure assets are not sweated unnecessarily.

Conclusion

When considering the term "asset" it is important to appreciate that at the time of any network build all significant costs are capitalised by the Winning Bidder(s). Much of the costs (and aid) may not be in physical assets but may be for contractors, personnel, design, project management etc. None of these costs are transferrable. For the fundamental assets of the network however it would be important that an accurate record of assets funded is maintained so that these assets can revert to the State. It is a very complex process and would require significant legal provisions to ensure title is transferred as required to the rightful owner. Such assets would need to be monitored carefully throughout the NBP contract to ensure they are fit for purpose on reversion and usable by another third party to deliver high-speed broadband.

Appendix I – Financial Considerations

A.1.1 Subsidy Requirements

KPMG have built a financial model to simulate the financial performance of the project over a 40-year period. The model takes inputs from capital expenditure and operating expenditure from the Network Cost Model and is designed as a 40-year model to reflect the useful asset lives of key elements of the initial capital expenditure and limit the impact of irregular replacement capital expenditure requirements. The Network Cost Model is designed on the basis of a fully allocated cost incurred by a private operator to build and operate the network.

Table A1.1 demonstrates the effect of different capital allocations over the rollout period on both models. The table highlights the cost to the Government in nominal terms i.e. the actual amount of subsidy to be paid to the Winning Bidder(s) over the 25 year contract term.

Table A1.1.1 (€m)

	Govt Subvention (Gap Funding)	Govt Subvention (Concession)	Govt Subvention (Gap Funding)	Govt Subvention (Concession)
Subsidy for first 5 years	[redacted]	[redacted]	[redacted]	[redacted]
Subsidy for next 20 years	[redacted]	[redacted]	[redacted]	[redacted]
Total Nominal Cost	[redacted]	[redacted]	[redacted]	[redacted]

In comparing the ownership models and the different initial capital allocation the actual cost to the State is approximately [redacted] higher for both capital allocations for a Full Concession model.

Detailed below is the Net Present Value (NPV) cost to the State which is calculated in line with the Public Spending Code. The NPV cost discounts the nominal costs to reflect the time value of money; the payments are spread over a period of 25 years and the fact that the value of €1m subsidy in 25 years is not the same as the value of €1m today.

Table A1.1.2 (€m)

	Govt Subvention (Gap Funding)	Govt Subvention (Concession)	Govt Subvention (Gap Funding)	Govt Subvention (Concession)
	€[redacted] subsidy first 5 years		€[redacted] subsidy first 5 years	
Total Nominal Cost	[redacted]	[redacted]	[redacted]	[redacted]
Total NPV Cost of subsidy	[redacted]	[redacted]	[redacted]	[redacted]

In comparing the ownership models and the different initial capital allocation the NPV cost to the State is between [redacted] and [redacted] higher for both capital allocations for a Full Concession model. The difference is higher for the larger initial capita allocation reflecting that the fact that the subsidy is paid earlier to the Winning Bidder(s).

The tables above do not make any allowance for the value of the assets that return to the State in year 26 in a Full Concession model, this is dealt with below in A.1.2. Terminal Value.

The figures included above are based on the KPMG financial models and do not make any allowance for Relevant Contract Tax. The Department has recently been advised by Revenue that they are of the opinion that the proposed contract will be subject of the regulations[21] in relation to the application of Relevant Contract Tax (RCT). As RCT is applicable the Department will need an additional [redacted] included in the Vote in order to pay a reversible VAT charge directly to Revenue on all subsidy payments related to the contract. This does not increase the cost to the State as the money will transfer directly between Exchequer accounts.

A.1.2 Terminal Value

One key difference in the KPMG report between the NPV cost and the nominal cost of the Full Concession model is the inclusion of the Terminal Value of the business/assets transferred back to the State at year 25.

The model calculates the Terminal Value of the Full Concession as 6 x EBITDA at year 25. This Terminal Value is then discounted at an annual rate of [redacted] to give a NPV benefit (i.e. the value of the returning asset discounted to reflect the time value of money) of the returning asset of [redacted]. This value is the same for either initial capital allocation as the value of the returning asset is unaffected by the timing of the subsidy payments.

Table A1.2.1 – Full Concession model – Terminal Value

	EBITDA (nominal)	Terminal Value (nominal) - EBITDA * 6	Terminal value (NPV) - discounted @ [redacted]
EBIDTA - yr 26	[redacted]	[redacted]	[redacted]

Table A1.2.2. below shows the net cost to the State when allowance is made for the Terminal Value above.

[21] Section 530 Tax Consolidation Act 1997

Table A1.2.2 (€m) terminal value

	Govt Subvention (Gap Funding)	Govt Subvention (Concession)	Govt Subvention (Gap Funding)	Govt Subvention (Concession)
	[redacted] subsidy first 5 years		[redacted] subsidy first 5 years	
Total Nominal Cost	[redacted]	[redacted]	[redacted]	[redacted]
Total NPV Cost of subsidy	[redacted]	[redacted]	[redacted]	[redacted]
NPV value of asset returning to State		[redacted]		[redacted]
Net NPV cost to State	[redacted]	[redacted]	[redacted]	[redacted]

This risks associated with this desk-top valuation of the terminal value of the returning asset are:

- The valuation is based on forecast cashflows for 25 years in the future and there is no certainty that the multiple of 6*EBITDA will be an appropriate valuation at that time
- The price the State has to pay for the asset is fixed by the subsidy level at contract award and aid over the duration of the contract but the true value will only be known at contract expiry.
- This assumes no incentive to the concessionaire on hand back of the transferring assets including the customer contracts and the State receives the full value of both the tangible and intangible assets.
- The valuation assumes the transfer of on an ongoing business with no allowance made for the obsolescence of the infrastructure being returned to the State.
- The practicalities of the transfer of the business in a Full Concession model may mean that the State does not get the true business value as calculated above. One example is the MANs contract (as mentioned in Appendix II) where certain transferring assets including the customer base and network enhancements involve a payment to the concessionaire. Should such a requirement emerge in dialogue on a Full Concession ownership contract this would increase the NPV cost to the state and further increase the difference between the two ownership options.

The Gap Funding model also has terminal value assumptions to replicate the approach of a bidder and how they may value the asset in their bid; as the access and financial appraisal models cover a period of 40 years, the terminal value calculation is split into two parts. For the first part of the terminal value calculation, the model cash flows are utilised in order to account for the irregular cash flows of the business due to asset replacement. As such, for this part of the calculation, the years 26- 40 cash flows are discounted to their present value and summed. For the second part of the calculation, the final year (year 40) EBITDA in the financial appraisal model is multiplied by an exit multiple of 6x EBITDA and discounted to present value. The discount rate for the private sector is set at [redacted] as opposed to the [redacted] Government Discount Rate which has the effect that the NPV

value of the business to the Winning Bidder(s) is much less than to the State in the Full Concession model – NPV value of [redacted]

A.1.2 Changes to the Intervention Area

The figures provided above are based on a financial model for the full intervention area of 757,000 premises. In line with State Aid Guidelines, DCENR requested Operators to provide detailed commercial investment plans for Next Generation Access (NGA) broadband up to the end of the proposed deployment period of the intervention, 2020. A number of Operators provided details of their proposed investments to different degrees of detail. These plans were assessed by DCENR under technical, deployment and financial criteria, and before any plans could be included on the map and reduce the Intervention Area the operator would have to provide a contractual guarantee to the Minister. To date none of the operators have fulfilled all the criteria and signed a guarantee therefore no proposed investments have been included on the map. It is still however open to operators to approach DCENR with new plans and an offer to sign a contractual commitment.

During the assessment of Operators' plans KPMG were engaged to provide an Impact Assessment on the implications to the intervention of the acceptance of plans submitted from a financial perspective and on the Ownership, Funding and Contract Governance reports. The Plans would reduce the Intervention Area (IA) to approximately 450,000 premises.

The financial implications are detailed below. The change in the IA was modelled under 2 scenarios – the incremental cost to the incumbent operator for the revised IA or fully allocated cost incurred by a third party private operator to build and operate the network. The reasons that the 2 scenarios were modelled were that the changes to the Intervention Area lead to a change in network design and indications from the Network Cost Model were that there could be significant differences between the cost of construction of the network to an incumbent and the cost to a third party private operator.

Table A.1.3.1 below illustrates the actual costs to the state across the tow cost models and with the fully costed model differing amounts of intervention in the first five years

Table A1.3.1 (€m)

	Incremental (incumbent)		Fully allocated Costs (new entrant)			
	upfront subsidy = [redacted] Govt Subven-tion Gap Funding	Govt Subven-tion Concession	upfront subsidy = [redacted] Govt Subvention Gap Funding	Govt Subvention Concession	upfront subsidy = [redacted] Govt Subvention Gap Funding	Govt Subvention Concession
Subsidy for first 5 years	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subsidy for next 20 years	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total Nominal Cost	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

The table illustrates that in the incremental cost to the incumbent there is a difference of over €[redacted] between the two ownership models the difference is less. Only €[redacted] in a fully costed model but the cost to the State is substantially higher. The table also illustrates the competitive advantage of the incumbent using an incremental cost model. This would provide better value to the state in that the overall cost would be cheaper but highlight an additional risk of a lack of competition within the procurement process as other operators would be aware of their lack of competitive advantage and would be less likely to compete for the tender.

Detailed below is the Net Present Value (NPV) cost to the State which is calculated in line with the Public Spending Code. The NPV cost discounts the nominal costs to reflect the time value of money; the payments are spread over a period of 25 years and the fact that the value of €1m subsidy in 25 years is not the same as the value of €1m today.

Table A1.3.2 (€m)

	upfront subsidy = [redacted]		upfront subsidy = [redacted]		upfront subsidy = [redacted]	
	Govt Subven-tion Gap Funding	Govt Subven-tion Concession	Govt Subvention Gap Funding	Govt Subvention Concession	Govt Subventio n Gap Funding	Govt Subvention Concession
Total Nominal Cost	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total NPV cost of subsidy	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

The tables illustrates that for the model based on the incremental cost to the incumbent the Full Concession would cost twice as much in NPV terms. The differences are smaller in the fully costed model but far more expensive for the State.

The Full Concession model has a Terminal Value for assets transferring back to the Stet and the tow different costing models produce 2 different EBITDAs at year 26. This value is lower as the intervention area is smaller with less revenue

Table A1.3.31 – Full Concession model – Terminal Value

Cost Model	EBITDA (nominal) Year 26	Terminal Value (nominal) - EBITDA * 6	Terminal value (NPV) - discounted @ [redacted]
Incremental Costing	[redacted]	[redacted]	[redacted]
Fully Allocated Costs	[redacted]	[redacted]	[redacted]

To allow for the estimated value of the returning asset to be included in the NPV comparisons the NPV cost is lessened by the returning asset value.

Table A1.3.4 NPV costs reflecting Terminal Value (€m)

	upfront subsidy = [redacted]		upfront subsidy = [redacted]		upfront subsidy = [redacted]	
	Govt Subven-tion Gap Funding	Govt Subven-tion Concession	Govt Subvention Gap Funding	Govt Subvention Concession	Govt Subventio n Gap Funding	Govt Subvention Concession
Total Nominal Cost	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total NPV cost of subsidy	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NPV value of asset returning to State		[redacted]		[redacted]		[redacted]
Net NPV cost to State	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

The figures included above are based on the KPMG financial models and do not make any allowance for Relevant Contract Tax. The Department has recently been advised by Revenue that they are of the opinion that the proposed contract will be subject of the regulations[22] in relation to the application of Relevant Contract Tax (RCT). As RCT is applicable the Department will need an additional [redacted] included in the Vote in order to pay a reversible VAT charge directly to Revenue on all subsidy payments related to the contract. This does not increase the cost to the State as the money will transfer directly between Exchequer accounts.

[22] Section 530 Tax Consolidation Act 1997

Appendix II – Previous State Interventions

The rationale for the State owning a section of telecommunications infrastructure is linked to traditional motivations for State intervention in markets. A strong body of research on market failures suggest a variety of reasons whereby the State may intervene in a market that is consistently producing outcomes that are not socially optimal. Remedies to address market failure however do not result solely with State ownership, which is often seen as a "last resort" measure. More appropriate instruments may involve removal of barriers to entry, additional taxation, subsidisation or the creation of property rights or changes to regulation.

A.2.1 National Broadband Scheme (NBS)

The NBS was designed to deliver basic, affordable broadband to target areas across the country in which services were deemed to be insufficient. The NBS contract was awarded in 2008, expired on August 25th 2014 following a 68 month operational period. Three (currently the second largest mobile network in Ireland) won the NBS contract and will continue to provide broadband coverage throughout NBS areas on a commercial basis. The contract awarded was based on the Gap Funding model and the significant funds were received from the European Regional Development Fund (ERDF) at that time. Three also invested a significant amount of its own capital and as part of the contract, took any commercial risk associated with the build, operation and demand for project. While the contract achieved the objective of ensuring all premises in Ireland have access to basic broadband, it was a short-term contract and the amount of funding available at that time only allowed for a one off investment in infrastructure that was capable of providing basic broadband. As a result the investment in high speed broadband now envisaged is required to re-invest in the rural network.

It is also worth noting that Three threatened to disconnect non profitable customers on expiry of the NBS contract. This was mainly where there were wireless sites built which had significant annual rents and very few customers being served from them. The subsequent merger with O2 allowed Three to mitigate the impact. After the expiry, prices also increased, particularly for satellite customers.

A.2.2 Metropolitan Area Networks (MANs)

MANs are State owned[23], open access telecommunications networks in towns and cities and are offered to authorized telecommunications service providers (hereafter 'service providers) on a wholesale basis to allow them to provide services without the need to build their owns networks. The MANs consist of carrier-neutral duct and fibre rings linking the main commercial and public buildings within the selected towns and cities. The MANs offer wholesale duct space, dark fibre,[24] co-location facilities and managed services to service providers to enable them to deliver high speed broadband services to their retail customers.

[23] Physical ownership is entrusted to the Local Authority in which the MAN resides, whilst the Beneficial Ownership is entrusted to the Minister for Communication, Energy & Natural Resources.

[24] Dark fibre means dedicated fibre that is leased to a telecommunication service provider who then installs its own equipment to deliver services over that fibre to its customers.

The MANs were funded under the National Development Plan and through the European Regional Development Fund. There were 2 Phases to the building of MANs:

- 28 MANs were completed under Phase I
- 60 MANs were completed under Phase II

MANs are independently managed, maintained and operated on behalf of the State by a Management Services Entity (MSE). The current MSE is enet.

Both Phase I and II MANs were subject to separate Concession Agreements entered into by enet and DCENR in 2004 and 2009 respectively. Both Concession Agreements are due to expire in 2020 and 2024 respectively.

The MSE retains an asset register of on each of the 88 MANs which is updated when a MAN is extended or modified. The asset register includes descriptions of the MANs associated tangible assets. There are other so-called "Transferring Assets" which not recorded on the register but will be negotiated with the Department at the end of the contract period.

The ownership of the MANs resides with the State. DCENR and Local Authorities receives a revenue share from the MSE depending on the profitability of the MANs year on year. Furthermore, the MSE is required to enhance the infrastructure thereby making a non-financial return to the State also.

The ownership of the MANs resides with the State. DCENR receives a concession fee from the MSE for the exclusive right to operate the Man Infrastructure. The concession fees are made up of 2 elements for the Phase 1 MANs – a revenue share and an enhancement obligation. The Concession Fee for the Phase II MANs is limited to a revenue share. The revenue share is set at a minimum amount for each Phase of the MANs. Additional revenue share is also payable to the State in circumstances where set gross revenues on the MANs are exceeded. The enhancement obligation is a set percentage of the previous year's gross revenues, to a maximum of a set figure, and must be used to further enhance the infrastructure.

Appendix III – History of public/private ownership of telecom networks in Ireland

A.3.1 The Fixed Operator Market

Since the foundation of the State, there has only been one telecom provider across the State, initially known as the Post and Telegraph Service and in later years pre-privatisation Telecom Éireann. Having one telecom utility provider was the case across the world as communications evolved from analogue to digital. As telephone communications became ubiquitous and designated by most countries as a social requirement for all homes and businesses, the State bodies responsible for providing the telecom services grew to be large revenue generating companies.

While local governments provided the upfront capital to build the required infrastructure, the revenue derived from these networks soon outgrew the ongoing costs. Many of these utility companies became very profitable and therefore very attractive to the private sector. The history of these companies also shows that the prices charged for the use of the networks was generally high, due mainly to a lack of competition from alternative networks.

As a result of rising prices and a lack of reinvestment in the networks the European Commission (EC) required countries to liberalise their telecoms markets to allow for new entrants and competition[25]. It was also the case that these networks had become commercial and therefore did not or should not require any State funding. As a result, the view was that the State should not have any involvement in their running and that regulation should be sufficient to protect the interests of the State. In 1999 this occurred in Ireland with the privatisation of Telecom Éireann, which went on to be renamed Eircom, and in 2015 was rebranded as eir.

To facilitate new entrants and monitor the behaviour of these monopoly former State companies, EU Members States were also required to establish a sectoral regulator. These National Regulatory Authorities (NRAs)[26] were provided with directives from Europe. When transposed into national law these directives allowed the NRA's to

- set out requirements on the monopoly telcos
- take enforcement action where they breached the requirements to allow other network operators to use their networks (upstream markets) at terms and conditions and wholesale prices that facilitated competition at the retail level (downstream markets)

For the initial years the NRA's also regulated the retail prices to protect consumers from excessive prices and incentivise efficiencies from Eircom's. As more and more competition came into the market the need for retail regulation has become less prevalent.

[25] Beginning 1988 the EU liberalised all aspects of the telecoms market including terminal equipment, value-added services, satellite equipment and services, cable TV networks and mobiles communications. This process culminated in 1998 with the Liberalisation Directive which required of voice telephony and infrastructures.

[26] Ireland's NRA is ComReg

The fixed market has a number of alternative network operators primarily in the urban areas where there is density of population and business. For example

- BT Ireland have built a substantial backhaul network
- Magnet have invested heavily in fibre in housing estates around the suburbs of cities
- ESB telecom have a significant fibre ring structure around the country
- enet also manage the MANs fibre ring networks on behalf of the State.

Another significant development in Ireland between 2005 and 2015 was the investment in the old Irish cable network by the American cable company Liberty Global. This has resulted in high speed broadband being available, in competition to the eir fixed network, to over 850k homes and business across the State. The cable network is however confined to mainly cities and densely populated urban areas.

All of these networks (and there are many more) are used by retail service providers, of which there are more than 20 available to consumers today. Details of consumer packages available to consumers can be viewed on the Regulator's website[27].

The success or failure of competition to prompt commercial operators to reduce prices and increase reinvestment in networks has largely been driven by the effectiveness of regulation, good governance and investments from other commercial operators such as UPC (now Virgin Media and more recently SIRO). There have been very mixed results internationally and in Europe in this regard. A significant development recently was the announcement by Ofcom[28] in the UK. Ofcom will now require significant changes to the structure and behaviour of their former State telecom, BT (privatised in 1984). This is an attempt to stimulate investment and competition and occurs some thirty years post privatisation of BT.

A.3.2 The Mobile Market

While the fixed telecom market evolved over many decades, the mobile market is a more recent phenomenon

- The first mobile network went live in 1986 under the name of Eircel, a subsidiary of Telecom Eireann
- 2G GSM services however did not come on stream until 1993
- Digifone entered the market in 1997.

These networks rely mainly on the allocation of spectrum from the State and require far less upfront investment compared to the fixed networks..

The introduction of the GSM licences by the State and the advent of an alternative communications system to the plain old telephone (POTs) gave rise to some competition and gave consumers an

[27] www.comreg.ie

[28] The independent regulator and competition authority for the UK communications industries - http://www.ofcom.org.uk/

alternative. This alternative was expensive at first but soon became mainstream in the late 1990's. Today there is over 100% penetration of mobile phone use in Ireland. There are currently three large mobile providers, Vodafone, Three and Meteor with smaller entrants that use the main network to compete call MVNO's (Mobile virtual network operators) such as Tesco mobile, Virgin Media etc. All investment in the mobile networks is derived from the commercial market and in 2012 the State (through an auction run by ComReg) sold 4G spectrum licences to the mobile companies for €855 million. In addition, the mobile operators have and are investing significant capital in their infrastructure.

A.3.3 The Business Market – Fixed and Mobile

The large enterprise market has been well served by the commercial sector to date. This is because commercial operators provide dedicated leased line fibre services to the businesses. As the rental for such services is high there is a willingness to invest in the fibre and fixed wireless infrastructure demanded by these corporates. The IDA has been successful in securing the necessary infrastructure that promotes foreign direct investment to business parks and urban centres.

However, the small and medium size business sector has in recent years suffered from a lack of such investment in high speed broadband with reliable quality for business use. In urban areas the issues of poor connectively have been largely addressed by eir and Virgin Media (the cable company) but also by other companies including but not only BT Ireland, Airspeed and Imagine to name a few. The issue of access to affordable high speed broadband still to be addressed for small and medium size business are now predominantly in the Amber area identified by the Department for the proposed State Intervention now undergoing a procurement process.

The overall business sector is well served by mobile voice and data with significant competition resulting in very good packages for all business. All mobile operators tend to offer fixed voice, broadband and mobile services which have resulted in significant savings to business in recent years.

A.4.4 Fixed Wireless Access Market (FWA)

Today there are over fifty small indigenous FWA operators mainly across rural Ireland. In 2010 ComReg announced that its Fixed Wireless Access Local Area (FWALA) licensing scheme for the 3.6 GHz spectrum (3 400 MHz – 3 800 MHz) band would end in July 2017.The consequence is that any existing FWA licences issued in that band would expire by that date. This band is currently used by 14 operators to provide fixed wireless broadband services to an estimated 27,000 customers. ComReg is currently running an auction process for this licencing scheme to run beyond 2017.

The remainder of FWA operators provide broadband using licence exempt spectrum. This means they there is no regulation of the airwaves they use. Therefore consumer services may have interference from other wireless devices and there is no requirement on the Regulator to intervene to address such interference. Consumers are consequently not guaranteed the same quality of service as those customers which service provides use licensed spectrum. While the consumer numbers are not reported to ComReg, it is estimated that there could be over 70,000 homes using FWA broadband and in most case without this FWA service they would have not broadband at all.

Appendix IV Summary of responses to the July consultation

Table VI: Operators and vendors
[redacted]

Table VII: Public and others
[redacted]

III. State and Semi-State
[redacted]

III. State and Semi-State
[redacted]

Appendix V- International Case Studies

Country	Scheme	Ownership Model	Control	Level of public ownership	Scale	Cost of project	Cost to State
UK	Superfast Rural Broadband Programme	Gap Funding	Through contract	None			Majority from private sector
Italy	Progetto B.U.L. Lombardia	JV	Through JV agreement / contract	51% of SPV by local authority	50% of population of Lombardia (4m people)	€2Bn	Majority from private sector
New Zealand	Ultra-Fast Broadband Initiative (UFB)	JV	Through JV agreements / contracts.	100% publicly owned company (Crown Holdings) set up. Number of JV arrangements between Crown and Chorus, and other local fibre co's (LFC). Crown Holdings my hold up to 50% of shares in LFCs	Target 80% of population		$2bn Government investment into two initatives- UFB Initiative and the Rural Broadband Initiative (RBI)".
France	Auvergne Haut Debit	Public sector financing and ownership with private sector design, build and ongoing operation.	Through ownership and contract	100% publicly owned		€38.5m	Majority from public sector
Australia	National Broadband Network	Public Sector designed, built, owned and operated	Through ownership	100% owned by National Broadband Network (NBN), a public company,	Wholesale only nationwide fibre access network to reach 93% of the population	Circa AU$46Bn-$58Bn	Majority from public sector
Canada	Connecting Canadians (5Mbps for 98%)	Gap Funding	Through contract with various ISPs	None	Access		$305milion (over five years)

Appendix VI- Sub-group Terms of Reference

National Broadband Plan
Ownership Sub Group (the "Sub Group")
Terms of Reference

Introduction

The Department of Communications, Energy and Natural Resources ("DCENR") is responsible for the programme to arrive at an optimal State-led investment in areas where there is market failure in the provision of Next Generation Broadband ("NGB") in line with the targets set by Government in the National Broadband Plan[29] ("NBP Programme") and appoint a company or companies to implement the planned intervention.

A key consideration of the NBP Programme was to advise Government on the optimal Ownership option to procure a third party to design, build, manage and operate the High Speed Broadband Service required by the Strategy. KPMG were engaged as financial advisers to provide financial advice on Ownership options. As part of this advice a draft report was published and consulted on in July 2015. DCENR received a mix of responses to the proposals set out by KPMG. All these responses are available for review in DCENR. Five Ownership options were consulted on and detailed financial modelling was carried out in 2015 to support the KPMG final report published in December 2015. The five models considered were:

1. **Commercial Stimulus / Gap Funding** –Private sector finance, build, own and operate with contractual obligations to the Department.

2. **Concession** –Private sector finance, design, build and operate with asset reversion to the State at end of the contract.

3. **Joint Venture** –50:50 shareholdings between the Government and the private sector. A variant of a JV where the Government held a minority shareholding of 24.99% was also considered.

4. **Public Concession** –Public sector finance and own, with private sector design, build and operate.

5. **Full Public Ownership** –Public sector build, finance, own and operate.

Of the five options considered, following a Government decision in December 2015, two options have been shortlisted for further consideration. The two remaining options are:

1. **Commercial Stimulus / Gap Funding** –Private sector finance, build, own and operate with contractual obligations to the Department.

2. **Concession** –Private sector finance, design, build and operate with asset reversion to the State at end of the contract.

[29] The full text of the NBP is available at:
http://www.dcenr.gov.ie/files/PageTurning/NationalBroadbandPlan/index.html

The Sub Group, which comprises representatives from the DCENR (and its advisers), the Department of Finance, the Department of Public Expenditure and Reform, NewEra and the NDFA has been established to provide further advice and assistance with regard to how the DCENR might arrive at a final recommendation on the optimal Ownership option to the Minister and Government which will then be used as part of the Invitation to Participate in Competitive Dialogue (ITPD). It is envisaged that the Sub Group's work will be substantially complete by the end of March 2016. This advice will take account of the detailed analysis and reports prepared by KPMG and further consider the wider public policy issues raised by Stakeholders to the July 2015 consultation response.

It should be noted that the Pre-Qualification stage of procurement is under way. Interested parties have been asked, as part of this process, to notify DCENR, via a sealed envelope, which Ownership option they would be willing to bid for under each Lot. The NBP team, including members of this Sub Group, will not have sight of these sealed envelopes. An independent person(s) not involved in the PQQ evaluation process will collate the responses from these sealed envelopes and provide the Minister and Government with the number of interested bidders that have selected Option 1 or 2 as their preferred option in relation to each Lot. The names of these bidders will remain anonymous. Bidders may also select both models. Where a bidder selects Option 1 or 2 only and the decision by Government is to opt for a different model to that selected, that bidder will not be shortlisted for the ITPD stage of procurement.

The purpose of the Sub Group is to facilitate the development of a Memorandum to Government supported by a formal submission and related documents, where the DCENR NBP team will recommend a preferred option from the two options shortlisted in December 2015.

This document sets out the terms of engagement for the Sub Group.

Scope of the Sub Group Advice

The work of the Sub Group will be limited to;

- review and critical appraisal of the analysis completed to date by DCENR (and its advisors) in relation to the two remaining options and assist in identifying and reviewing any additional issues and steps that may be pursued by DCENR (and its advisers) in determining the preferred Ownership option and making its recommendation to Government for decision.
  In that regard, the Sub Group will:-
- Provide financial advice as appropriate on the implications of Option 1 versus Option 2 from a State financing perspective over the short/medium and long term, accounting treatment of assets/debt finance etc.
- Consider the practicalities of asset reversion to the State under the Concessionaire model.
- Consider whether there are any critical public interest issues to be taken into account in selecting the preferred option that have not been addressed by DCENR or its advisers to date. This will involve the Sub Group reviewing the issues raised by Stakeholders to the July 2015 consultation Provide comment to the DCENR on it's Memorandum to Government and the supporting formal submission and related documents in respect of the recommended option.
- Provide comments as appropriate through the Chair of the Sub Group on the documents presented.

The Sub Group is not tasked with;

- making a final recommendation with regard to the preferred Ownership model, this is a matter for DCENR;
- arriving at a process for asset reversion where a Concessionaire model is the preferred option. Where Government decide on this model of Ownership it will be a matter for DCENR (and its

advisers) to provide short listed bidders with a draft process for asset reversion which can be discussed at dialogue stage.

Treatment of Confidential and Commercially Sensitive Information

Over the course of the engagement there are likely to be discussions and possibly sharing of information as part of the Sub Group [and Department of the Taoiseach, Office of the Attorney General, Chief State Solicitor's Office, Central Statistics Office as appropriate], that if disclosed outside DCENR/DPER/DoF/NewEra/NDFA/CSO/CSSO/AG [and the Department of the Taoiseach, as appropriate] could jeopardise the success of the NBP programme. In order to mitigate such risks it is important that clear guidelines are set out to those that participate in meetings or receive information through the Sub Group.

It is assumed that all persons involved in the Sub Group have the required Non- Disclosure Agreements and Conflict of Interest Statements in place.

All information relevant to the NBP Programme will be stored centrally by DCENR with appropriate access allowed to members of the Sub Group via DCENR remote access security systems. In the event that it is necessary to send information to members, all such content attached to e-mails containing Confidential and/or Sensitive information should be password protected.

All third party information shared between DCENR and members of the Sub Group will be treated as confidential and any such information will not, without the prior written consent of the relevant third party, be further disclosed or used for purposes other than in furtherance of facilitating the Sub Group in advising DCENR in the context of the NBP Project.

DCENR will oppose, to the fullest extent possible, any application by a third party for disclosure of confidential information or materials received pursuant to a Freedom of Information, Environmental Information or other request, unless specific consent has been given to its release.

Any inadvertent disclosure or misplaced electronic devices which may contain information relevant to the NBP must be disclosed by members of the Sub Group immediately to DCENR.

All information shared and discussed between DCENR and members of the Sub Group should be considered confidential unless otherwise stated.

Sub Group Engagement plan

The Sub Group will meet as required for a maximum of two hours per meeting at the Department's office in Adelaide Road. Members may be invited, as appropriate, to attend meetings with the Minister, Department of the Taoiseach and or DPER from time to time.

Personnel attending meetings (members may change as appropriate):

DCENR
[individual names redacted]

Department of Public Expenditure and Reform
[individual names redacted]

Department of Finance
[individual names redacted]

NewEra
[individual names redacted]

NDFA
[individual names redacted]

Chair
The meeting will be chaired by DCENR

Secretariat

DCENR will provide the Secretariat to the meetings where the following will be recorded;

1) Time, location and date of meeting
2) Attendees
3) Agenda
4) Actions arising with person(s) responsible for action and due date noted
5) AOB

Relevant staff from DCENR NBP Programme team will meet as required to address actions noted from Sub Group meetings.

FOR INFO
Sub Group members should review and familiarise themselves with the relevant information gathered by DCENR to date that has informed the above process to December 2015.
Reading material is available on the DCENR website, www.broadband.gov.ie, in particular the KPMG Ownership report;
http://www.dcenr.gov.ie/communications/en-ie/Broadband/Pages/Intervention%20Strategy%20Updated%20December%202015-Reports.aspx

Any Confidential material or financial analysis will be made available also either via password protected e-mail or in the case of any financial modelling carried out by KPMG, on site in DCENR offices.